

**Appendix D2b. Response to Landfill Comments VR 2 and VR 9  
on the Draft Scientific Review of Biological Resources  
Impacts and Proposed Mitigation for the Potrero  
Hills Landfill Phase II Expansion  
(BCDC Permit No. MD88-09)**

Date: April 12, 2007

To: Jennifer Feinberg, BCDC  
Dan Airola

From: Pam Muick, Ph.D.  
Scientific Review Panel: Vegetation & Grazing Management

RE: Response to Comments VR2 and VR9 from the Scientific Review of Biological Resources Impacts and Proposed Mitigation for the Potrero Hills Landfill Phase II Expansion (BCDC Permit No. MD88-09)

The following are responses to ESP comments VR2 and VR9. The length of these responses, VR2 in Section 1 and VR9 in Section 2, precluded their inclusion in tabular form.

**SECTION 1. ESP Comment VR 2.** Elimination of Spring Branch Creek Headwaters and Reduction of Ecological Value within Lower Watershed

“In this section, the reviewer has made some assertions that have not been substantiated by the identification of data. It is unclear if these assertions are correct or to what extent they could occur. As such, these statements are highly speculative and not appropriate for this analysis.

The specialist’s reference to “Spring Branch Creek headwaters” is misleading to an uninformed reader and suggests that Ms. Muick did not read Mitchell Swanson’s evaluation in the EIR. Please note, as discussed above in the comments on the Chapter 3 Summary, the portion of the Spring Branch Creek drainage that runs through the project area do (*sic*) not have a defined bed and/or bank and was evaluated in the EIR.”

**Muick response to VR 2**

I will address the main points of the VR2 ESP comment in the following order:

(1) availability of the Mitchell Swanson evaluation in 2006; (2) reference to Spring Branch Creek headwaters; and (3) lack of defined bed and/or bank.

(1) *Mitchell Swanson evaluation.* The report entitled “Assessment of Ecological Value of Spring Branch Creek in and near the Potrero Hills Landfill” by Swanson Hydrology + Geomorphology, March 4, 2005, was not provided to the panel for the initial 2006 scientific review. Therefore I did not include it in my 2006 evaluation and recommendations. However, Steve Peterson, ESP, provided the document in April 2007 and I am now able to evaluate the document which I will refer to as the Swanson Assessment.

2) *Spring Branch Creek headwaters.* The Swanson Assessment states that Spring Branch Creek drains the interior 2.3 square miles of the Potrero Hills westward towards Suisun Slough and refers to it as a “watershed” in the first paragraph. The size, location and elevation of the Phase II area meet the definition of headwaters, defined as the uppermost tributaries of a drainage system.

3) Lack of a bed and/or bank. The Swanson Assessment (page 2) defines a stream channel as “the low area in a valley, canyon or plain where surface flow collects and moves towards

topographically lower ground in the process of draining the higher terrain of a drainage basin, or watershed. Stream channels typically have a flat “stream bed” bounded by banks; the size and shape of a channel is dictated by local climatic and geological conditions, and by the magnitude of runoff generated by the watershed and concentrated into streamflow.”

Utilizing field work and other data sources, the Swanson Assessment concluded that “the reaches of Spring Branch Creek within and above the project landfill expansion site fall short of the significant ecological value inferred by the applicable ordinances and policies as envisioned in the SMPP and LPP.” Without defining “significant ecological value”, the Swanson Assessment bases this conclusion on the creek’s ephemeral streamflow and the lack of defined continuous stream channel.

The Swanson Assessment does not provide the methodology used to determine “significant ecological value”. In the case of Spring Branch Creek, there are no references or reasons provided for the low ecological value assigned to ephemeral creeks.

Furthermore, the Swanson Assessment (page 6) asserts that prior to 1937, the bed and bank were “destroyed by grazing and construction of roads and fence lines” based on the comparison of aerial photos from 1937, 1957, 1964, and 1984. This conclusion is highly speculative and overlooks the possibility that Spring Branch Creek may have been a non-channelized basin or a zero order basin.

I find the Swanson statement about the lack of a continuous bed and bank confusing and inconsistent with the following sources of information: (a) the symbol used on the U.S. Geological Survey (USGS) 7.5 Denverton, CA quadrangle topographic map; (b) aerial photography available at [www.earth.google.com](http://www.earth.google.com); and (c) my field observations from 2006 and 2007. I will address the evidence informing my statements below.

(a) Denverton, CA 7.5 USGS topographic map: Spring Branch Creek is mapped with a dotted and dashed line on the 7.5 minute Denverton, CA quadrangle. This is the symbol used by USGS to represent intermittent streams. (<http://erg.usgs.gov/isb/pubs/booklets/symbols/>)

(b) Aerial photography: To investigate current aerial photography, I downloaded a photo of the Phase II area which I’ve attached to this response (see Figure D2b-1). A darker green continuous drainage and tributaries are visible in the air photo. This pattern corresponds to Spring Branch Creek as mapped by the USGS. And, in the air photo a channel bed and banks are visible, which meets the definition of a stream channel in the Swanson Assessment.

(c) Field observations. After reading the Swanson Assessment in April 2007 I was compelled to revisit Phase II to take another look at the Spring Creek drainage. I found it easy to locate and walk the Spring Branch Creek drainage and main tributaries. As part of my initial review in 2006, I had walked the creek and its tributaries. In both years Spring Branch Creek was an obvious landscape feature although precipitation in 2006 was above average and in 2007 was below average.

Based on the information above, I disagree with the Swanson Assessment conclusion that Spring Branch Creek does not support a creek in its headwaters. Although I believe that the creek has a bed and bank, even creeks without bed and banks may be classified as a non-channelized basin or a zero order basin. So, at the very least, the Swanson Assessment should have analyzed why Spring Branch Creek did not meet the definition of a zero order basin.

4) Lack of riparian vegetation. The Swanson Assessment states that the consultant completed a field survey, read the documents provided by ESP, and spoke with the consultants. From these lines of evidence he determined that there was no riparian vegetation along Spring Branch Creek.

Riparian vegetation includes both woody shrubs and trees and herbaceous plants. Often, the presence or absence of woody riparian vegetation can be determined from air photos – this is not the case for herbaceous vegetation. Therefore the air photos are not compelling as evidence for the lack of all riparian vegetation along the creek.

In 2006 and 2007, I walked the Phase II portion of Spring Branch Creek, and was able to follow the drainage channel. There I saw rushes (*Juncus spp.* possibly *balticus*) and other water dependent plants in and near the drainage. The PHLF environmental documents provide data supporting the presence of two obligate wetland plant species and several facultative wetland plant species from the wetland delineation plots in the Phase II area. However, I was not able to determine the exact location of these delineation areas (Routine Wetland Determination Data Forms in the Delineation of Areas Subject to Clean Water Act Jurisdiction within the Potrero Hills Landfill Expansion Project Area, Solano County, CA, and January 30, 2001 report by LSA).

For these reasons, I recommend that the Landfill reassess Spring Branch Creek in the Phase II area for ecological values of the watershed including herbaceous riparian vegetation. The reason to conduct further investigations is that these may lead to different conclusions about the environmental value of Spring Branch Creek's watershed and suggest more appropriate mitigation.

## SECTION 2. ESP Comment VR 9: Spring Branch Creek Watershed

*ESP comment* “The resource specialist recognizes that the proposed mitigation for disturbance of this portion of the Spring Branch Creek watershed meets and exceeds the U.S. Army Corps of Engineers mitigation requirements; she recommends enlisting the services of the Solano Land Trust to protect and enhance the watershed. The resource specialist states that “while most of the Spring Branch watershed is lacking riparian vegetation, it serves as habitat for winter-run chinook salmon via Spring Branch Slough in the Suisun Marsh”. The portion of the Spring Branch Creek upgradient drainage that “flows” through the project area does not sustain enough water flow to provide habitat for salmon and three existing dams preclude anadromous fish reaching the project area. Please provide the data of the assertion regarding Chinook salmon runs; salmon have not been observed in or adjacent to the PHLF.”

### Muick response to VR 9:

I will address the main points of the ESP comment in the following order: 1) the salmon; 2) the ecological values of Spring Branch Creek and First Mallard Slough; and 3) Solano Land Trust.

1) *Salmon Use of Spring Branch Creek.* I concur that there are no salmon runs on the Potrero Hills Landfill Phase I and Phase II properties. And, the ESP consultants are correct in their assertion that there are no published references about the use of First Mallard Slough by anadromous fish.

I will explain the basis for my initial assertion. In the mid-90s I worked for Solano Land Trust which owns and manages Rush Ranch, the location where Spring Branch Creek enters the Marsh and becomes First Mallard Slough. At that time I reviewed lists of fish netted from First Mallard Slough and remembered Chinook salmon on one list. However, after diligent searching, I was **not** able to locate a published reference. In addition, after completing the first draft report, I contacted Dr. Peter Moyle, UC Davis, who has been sampling fish in the First Mallard Slough area for decades. He confirmed that although one or two Chinook salmon may have been netted in the past, there is no regular use of First Mallard Slough by anadromous fish. Dr. Moyle, however, emphasized that the drainage is highly important to native fish.

2) *Ecological values of Spring Branch Creek watershed and First Mallard Slough.* The primary focus of my comments was on the effects of the Phase II expansion on the quality, quantity and timing of water entering Suisun Marsh. I emphasize that Spring Branch Creek has unique importance to wildlife and as serves as an important Suisun Marsh reference site. These values do not appear to be addressed in the environmental documents provided to the review panel.

In April 2005, the California Department of Fish and Game (2005) issued project review guidelines for protection of delta smelt, winter-run and spring-run Chinook salmon. The USFWS final rule designates critical habitat for the delta smelt in the following geographic areas:

”Areas of all water and all submerged lands below ordinary high water and the entire water column bounded by and contained in Suisun Bay (including the contiguous Grizzly and Honker Bays); the length of Goodyear, Suisun, Cutoff, **First Mallard (Spring Branch)**, and Montezuma sloughs; and the existing contiguous water contained within the Delta, as defined in section 12220 of the California Water Code. Critical habitat designation for the delta

smelt will provide additional protection under Section 7 of the Act with regard to activities that require Federal agency action. The designated critical habitat is contained within Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties, California. See Appendix B for map of delta smelt critical habitat.”

The San Francisco Estuary project (1993) identified **Spring Branch (First Mallard)** as a reference site for Suisun Marsh’s natural salinity regimes.

“These results suggest that various local controls on salinity can influence any assessment of regional salinity changes. Sites selected to monitor ecological changes of tidal marshland in relation to regional salinity should not be subject to local salinity control. In this regard, we note the great value of **Spring Branch** as a headward extension of a relatively natural tidal drainage system with a salinity regime that reflects regional conditions.”

Finally, Rush Ranch, where Spring Branch Creek enters Suisun Marsh, is a reference area for the entire marsh. It is a National Oceanic and Atmospheric Administration (NOAA) monitoring and research station within the National Estuarine Resource Reserve system (NERR). These NERR sites are overseen by San Francisco State University. Therefore, I’m reiterating the recommendations made within my original report that the loss of Spring Branch Creek should be mitigated within the Spring Branch Creek lower watershed.

3) Solano Land Trust. My comments regarding the Solano Land Trust, which owns Rush Ranch, were meant as an example of one possibility for mitigation that exists within the Spring Creek watershed. If mitigation is required within the watershed, I recommend that **all** watershed landowners be considered as potential partners not only Solano Land Trust.

In conclusion, based on the documents provided to date, the PHLF has not demonstrated what, if any, downstream repercussions there may be from changes in the upper Spring Creek watershed due to altering topography, runoff patterns, and stream channelization due to the Phase II expansion.

As stated in my 2006 report, I strongly recommend mitigation within the lower watershed of Spring Branch Creek watershed. Although I agree with PHLF and the Assessment that the Director’s Guild possesses high ecological values, without a side-by-side comparison of benefits from planned protection of the Director’s Guild with benefits of mitigation within the Spring Branch Creek watershed, it is difficult to evaluate which alternative compensates for the Phase II landfill expansion.

## References:

California Department of Fish and Game. 2005. In-channel project review guidelines for protection of Delta Smelt (*Hypomesus transpacificus*), Winter-run Chinook salmon (*Oncorhynchus tshawytscha*) and Spring-run Chinook salmon (*Oncorhynchus tshawytscha*) in the Sacramento – San Joaquin Estuary.

GoogleEarth. 2007. Two aerial photos of Potrero Hills Landfill have been downloaded and attached to support comments. ([www.google.earth.com](http://www.google.earth.com))

Montgomery, D.R.; Dietrich, W.E. 1989. Source areas, drainage density, and channel initiation. *Water Resources Research*. 25(8):1907-1918.

San Francisco Estuary Project. 1993.

[URL:http://library.ceres.ca.gov/docs/data/0700/716/HYPEROCR/hyperocr.html](http://library.ceres.ca.gov/docs/data/0700/716/HYPEROCR/hyperocr.html)

Swanson Hydrology + Geomorphology. 2005. Assessment of Ecological Value of Spring Branch Creek in and near the Potrero Hills Landfill. March 4, 2005.

**Figure D2b-1. Google Spring Branch Creek Photograph**

